Name:_____**Period:** _____

Analyze procedures-*What makes a good procedure?*

In science, a procedure is a detailed, step-by-step description of how to conduct an experiment or perform a task, including materials and methods, to ensure that others can replicate the work and achieve similar results

Let's analyze the procedure for a lab we did in class.

Experiment: *Materials* for the class: ● 10 pendulums each with 1 washer of 10 different lengths ● Metric ruler ● timer *Procedure:* 1. Hang the pendulum in a vertical position with the washer hanging below. 2. With the timer ready, lift the washer 45 degrees keeping the string straight. **3.** Release the washer and count the number of oscillations (swings), stop the time after **10 oscillations.** 4. Write time in the data table. 5. Repeat steps 1 to 4 two more times. 6. Calculate the average time of your trials. 7. Divide 10 by the average time to calculate the frequency. 8. Compare the frequencies of each length of string.	***Checklist for the Procedure*** 1. *How do we set it up?* 2. *What is staying the same?* 3. *What is being measured and how?* 4. *How many times do we repeat it?* 5. *What do we change?* 6. *Is there something that could be improved with the directions?*
Explain whether this procedure provides enough detail and has enough trails so that others can replicate the work and achieve similar results.	

Fix My Procedures- **Essential Question**: What are the requirements for writing good procedures?

Question	Procedures	What needs to be fixed?
1. Penny wants to test which brand of paper towel is the strongest when wet.	1. Cut paper towels into big strips. 2. Spray some water on each strip. 3. Tape paper towel strips on the wall. 4. Use one finger to pull down on each strip until it rips. 5. Decide which strip required the strongest pull to rip. That will be your winner.	
2. Benji wants to know which music puts babies to sleep the fastest.	1. Find 3 types of music: classical, jazz, K-pop. 2. Lay down the baby in the crib. 3. Start timer and play music for baby 4. See how long it takes for the baby to fall asleep. 5. Record the time (in seconds) how long it took for the baby to fall asleep.	
3. Roger wants to know how temperature affects the elasticity of a rubber band.	1. Get 3 rubber bands. Put one in the oven. Put one in the freezer. Put one outside. 2. Pull each rubber band and measure the maximum stretch before it breaks. Repeat for each rubber band.	
4. Tonya wants to know which plant food makes plants grow the fastest.	1. Get a pack of tomato seeds and put one seed in each cup with 10 grams of soil. 2. Add a good amount of plant food in each cup. 3 Water each cup when they look dry. 4. Wait 3 weeks and measure which plant grew the tallest.	

My Project Problem:

Things to think about: *How do we set it up? What is staying the same? What is being measured and how? How many times do we repeat it? What do we change?*

Procedure: Write out the steps to complete your experiment. *Step #s are a guideline-adjust as needed*	**Goal:** These directions should be clear enough that you could complete the experiment. ***Peer Review:*** *What steps are unclear? How could they be improved?*	**Rewrite your procedure with at least 2 improvements.** **Attach another paper if needed*
Steps 1-2 →Set it up Steps 3-4 →What do we do & measure Step 5 →How many times should we repeat? Step 6 →What do we change? Step 7→ Repeat steps __ to _ for a total of _ trials *Repeat steps 6&7 as needed* 1. _____ _____ _____ 2. _____ _____ 3. _____ _____ _____ 4. _____ _____ _____ 5. _____ _____ _____ 6. _____ _____ _____ 7. Repeat steps _____ to ____ for a total of ____ trials		